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PHASE ONE GUIDEWAY COMPLETED

PHASE ONE GUIDEWAY COMPLETED ● 04 MRT CORP WINS GLOBAL GIS AWARD ● 15

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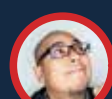
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INSIDE THIS ISSUE FEATURES

- 04** PHASE ONE GUIDEWAY COMPLETED
- 07** LOCAL AUTHORITIES VISIT MRT STATION FACILITIES
- 08** PLANMALAYSIA VISITS MRT SBK AND SSP STATIONS
RM252.7 MILLION AWARDED TO BUMIPUTERA CONTRACTORS
- 09** SECURITY AND CENTRALISED LABOUR QUARTERS SEMINAR 2019
- 10** MRT CORP KNOWLEDGE SHARING WITH PETRONAS
MRT CORP HOSTS UNITEN STUDENTS
- 11** MRT PROJECT STUDY VISIT BY HONG KONG GOVERNMENT OFFICIALS
- 12** SEOUL METRO VISITS MRT CORP
TAIWAN DELEGATES VISIT MRT CORP
- 13** TANZANIA DELEGATES VISIT BANDAR MALAYSIA NORTH MRT STATION
- 14** NINTH SSP LINE TBM BREAKTHROUGH
- 15** MRT CORP WINS GLOBAL GIS AWARD
- 18** KLANG VALLEY MRT PROJECT BAGS BEST PROJECT AWARD
MRT CORP WINS EMPLOYER EXCELLENCE SILVER AWARD

PROJECT UPDATES

- 16** MRT SUNGAI BULOH-SERDANG-PUTRAJAYA (SSP) LINE

HAPPENINGS

- 19**



DID YOU KNOW?

The MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line trains are manufactured in South Korea and assembled in Malaysia.

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GOOD END TO 2019, EXCITING 2020 AHEAD

As we say goodbye to 2019, I would like to take the opportunity to look back at what has been a very momentous year as far as the Klang Valley MRT Project is concerned.

One of the most major milestones for the construction of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line was achieved in the second half of the year. As August was drawing to a close, the last segmental box girder for the last span of the entire elevated guideway needed for Phase One was launched.

The completion of the last span near the future Sri Damansara East MRT Station was celebrated because this meant that track-laying works can now be carried out uninterrupted. This is very important to ensure that the targeted date for the opening of Phase One, between Kwasa Damansara MRT Station and Kampung Batu MRT Station in mid-2021 is not delayed.

This achievement is the subject of the cover story of this edition of Interchange.

Another major event was marked about a month later when we celebrated the breakthrough of Tunnel Boring Machine (TBM) S-1063 at the Ampang Park MRT Station site. Although we have had a number of other TBM breakthroughs previously, this one was significant as it brought past the halfway mark in terms of tunnelling distance to be done.

With this breakthrough, the parallel tunnels stretching continuously from Sentul Barat MRT Station to Ampang Park MRT Station, and from Chan Sow Lin MRT Station to Bandar Malaysia Selatan MRT Station - 14.4km out of a total of 23.6km to be excavated - had been completed.

Ending 2019 on a high note, we now have to be totally focused on ensuring that our construction stays on track in 2020, which promises to be a very busy year.

The pressure will be on the Phase One section as both station and electrical and mechanical system works will be moving at full speed towards completion in order to be ready for operations a mere 18 months away. For this section of the SSP Line, Year 2020 will be the 'final lap' in the race to get it opened on time.

For the rest of the line, it will be no less busy. Tunnelling works and the elevated guideway for the southern section will be completed by the end of next year. All electrical and mechanical system works will also be picking up steam.

It will be all hands on deck for all of us in MRT Corp as we push towards completing the SSP Line on schedule.

Thank you and have a good 2020.



ABDUL YAZID KASSIM

CHIEF EXECUTIVE OFFICER
MASS RAPID TRANSIT CORPORATION SDN BHD



THERE was an obvious sense of excitement during the early hours of 28 August 2019 at the MRT Project worksite along the Middle Ring Road II near the Sri Damansara Timur railway station.

Workers were busy going about doing what they have been doing for most nights for the past two years - launching segmented box girders (SBGs), the prefabricated blocks which are lifted, strung together back to back and then placed on piers to form a guideway span for the elevated MRT tracks.

But that night was different. The span they were constructing was going to be the last one for the guideway for Phase One of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line. When the span was completed at about 8am that morning, the entire elevated guideway from Sungai Buloh to Kampung Batu, with a distance of 12.6 km, was complete, allowing the next critical stage of the project, namely track-laying works, to be carried out unobstructed. Phase One of the SSP Line is targeted to start operations in July 2021.



PHASE ONE GUIDEWAY COMPLETED

Everyone cheered and posed for pictures as the last SBG, decked with the Jalur Gemilang, was lifted and put in place. It was certainly a good reason to celebrate as the construction of this stretch of the SSP Line had many challenges, caused by the alignment running by the side, above and even under major roads and highways, over railway tracks and rivers, and through extremely densely populated areas.

LONG SPANS

The Phase One elevated alignment has seven long spans which go over rivers, railways and major roads. The term long span is used when a span is longer than a standard 30m span and requires a different construction method than using launching gantries for standard spans.

The longest of such spans was called 'Long Span 1' with total length of 312m made up of four non-standard spans constructed over the six-lane Jalan Kuala Selangor, two sections of the Sungai Buloh exit of the North-South Expressway, KTM railway tracks and Sungai Gasi. The longest of the four spans measured 110m in length and is among the longest single span for the entire SSP Line.

Another challenging one was 'Long Span 3' located at the interchange of three major roads - Jalan Kuala Selangor, Damansara-Puchong Expressway and the Duke 2 Expressway. Not only were the spans crossing over multiple busy highways, they had to be built at a height of 22m above ground level (similar height to a five-storey building) so that the guideway could span over two levels (ground and fly-over) of roads of the interchange.

As these long spans ran over busy roads, the complicated construction method required for them to be built had to be carefully planned and implemented. Roads had to be closed as the SBGs had to be hoisted either by huge cranes or by segment lifters.





GOING UNDER

Hardly a kilometre away from Long Span 3 near where the final span for Phase One was constructed, the engineers faced another challenge - crossing the Middle Ring Road Two (MRR2). As the MRR2 is elevated at this location, the decision was to build the MRT guideway under the six-lane road.

As the guideway dived beneath the road, the design engineers had to ensure that it was low enough for trains to pass under the MRR2. At the same time, the guideway could not go too low because below the MRR2 was Jalan Kepong and the guideway had to be high enough to give clearance for traffic using that road.

While juggling with this, the engineers also had to ensure that during the construction of the guideway, the impact on the traffic on Jalan Kepong was minimised. As for the MRR2, the road had to be kept open even when construction was being carried out underneath it and the engineers had to ensure that it would be completely safe for users to continue using the road.

THROUGH KEPONG AND JINJANG

These two areas are synonymous with traffic congestion and high density. These two

factors are extremely good reasons for the MRT to go to these areas. However, before the people can enjoy the benefits of a modern and efficient public transport system, they unfortunately have to endure inconvenience when the system is being constructed.

Mitigating the inconvenience faced by the communities in this areas and meticulous planning of traffic diversions and road closures became the major focus of those involved in the construction of this section of the guideway.

One of the most challenging sections was at Pekan Kepong, where two rows of old shophouses created the narrowest stretch of Jalan Kepong, with just enough width for two lanes for each direction, and road side parking on both sides of the road.

Engineers had to figure a way get the alignment through this narrow section, which they managed to by building the guideway along the median of the road. The design managed to save the old shophouses on both sides of the road from demolition, but the road side parking had to go, and replaced with bays elsewhere.

The narrow space also made construction extremely challenging, requiring complicated traffic management plans which involved

contra flow and even full closures with alternative roads at night. Construction safety was also very important as buildings with inhabitants were located just a few metres away from the work.

NEXT CHALLENGES AHEAD

While the celebrations for the successful completion of the guideway for Phase One were being held, thoughts about what lay ahead were not far from the minds of those celebrating.

With the completion of the guideway, the next stage of works, namely getting the trackwork for Phase One done, would now be able to continue unhindered. At the same time, other electrical and mechanical system works such as installation of the signaling system, power supply third rail, communication cables and others would also be taking place.

As for those involved in civil works, the stations along the stretch of the alignment as well as the rest of the alignment all the way to Putrajaya, including the underground section, would have to be completed.

Only when the entire SSP Line is completed, now targeted at the end of 2022, would the real celebrations begin. 🚆

Q&A WITH ENCIK KHAIRUL AZHAR SAMSUDDIN

ENCIK Khairul Azhar Samsuddin, who is a Senior Project Manager II, oversees the construction of the northern elevated section MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line. On 29 August 2019, he was involved in the completion of the elevated guideway for Phase One of the line, a major milestone that would enable the MRT tracks for this phase which was scheduled to open for operation in July 2021, to be completed without any interruption. He talked about the challenges and difficulties faced for the elevated guideway to be completed.



> WHAT WAS YOUR FEELING WHEN THE LAST SBG TO COMPLETE THE PHASE ONE ELEVATED GUIDEWAY WAS LAUNCHED?

There is always a great feeling when we come to the final stage of a particular work. Seeing the last SBG being launched filled with a sense of accomplishment as well as a realization that I have done something valuable in this world.

> WHAT WAS THE MOST CHALLENGING THING WHEN CONSTRUCTING THE PHASE ONE ELEVATED GUIDEWAY?

Building the MRT is a tough project. The construction of the elevated guideway involves a lot of heavy lifting works and most involve overhead works, such as over roads which continue to be used. The biggest challenge was when we were constructing Long Span 3 over the LDP-DUKE-MRR2 Interchange which directly crossed above live traffic. This kind of work would expose the public, especially road users, to more safety issues.

> HOW DID WE OVERCOME THAT CHALLENGE?

The method to manage and overcome the challenge was by having a comprehensive Traffic Management Plans (TMP), comprehensive lifting plans as well as work method statements that approved or certified by competent personnel which have to be fully complied with by the contractor. We also ensured that our Emergency Response Plans (ERP) were drawn up and ready to be properly executed. Any complaints or reports from the public and stakeholders affected from the project were quickly and properly dealt with.

> THE ALIGNMENT PASSES THROUGH EXTREMELY BUSY AREAS. HOW DID WE MINIMIZE THE IMPACT OF THE STAKEHOLDERS IN THE AREA?

Apart from having comprehensive TMPs and ERPs, we also carried out extensive engagement sessions with the public and stakeholders from affected areas.

By meeting and engaging with stakeholders, we were able to reduce and mitigate the negative impacts from our project on these groups. Developing such relationships with stakeholders resulted in increased trust, and with such trust, we were able to work more effectively.

> DO YOU THINK MANY PEOPLE IN THIS AREA WILL USE THE MRT WHEN IT STARTS OPERATING?

Yes, I believe they will be proud to use this sophisticated and modern transportation mode.

> CAN YOU SHARE A HAPPY OR MEMORABLE MOMENT WHEN WORKING IN THE AREA?

While completing the guideway for Phase One was a major milestone for the construction of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line, the happiest moment for me was when the last SBG for Long Span 3 was launched on 14 March 2019 to complete the span.

Long Span 3 had a total length of 182m and was considered high risk and the most critical part of the work. It took months to complete and not to mention the many challenges faced during the construction. We had to make sure that results come out right. At the same time, as good as it feels to finish a job, the best feeling one can have is when you know that you've accomplished something important, something many people wished they could have done but might not have had the opportunity to do so.

LOCAL AUTHORITIES VISIT MRT STATION FACILITIES

SIXTY Local Authorities (LA) technical officers, who were also participants of the 'Universal Design Exposure Course 2019' organised by the Ministry of Housing and Local Government paid a visit to the Kajang MRT Station on 10 July 2019.

The objective of the visit was for the participants to learn about the facilities available for Persons With Disabilities (PWD). This is in conjunction with the objective of the course, which was to improve the participants' understanding on the 'Universal Design' concept as well as assisting them to gain skills in order to understand the implementation of PWD audit accessibility process, to be practiced at their respective LA later.

The visit began at the concourse level of Kajang MRT Station, where Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) Strategic Communications and Stakeholder Relations Junior Executive Encik Maharezan Mahadzir welcomed the delegates.

MRT Corp Planning and Design Senior Project Manager Encik Mohd Fadzil Abd Hadi then gave a briefing on the facilities available at the MRT stations that fulfill PWD needs such as wider special lane at the automatic fare collection gate for individuals on wheelchairs, PWD toilet and tactile for the visually impaired.

Fadzil continued his briefing by sharing on the safety features provided at every MRT station, followed by an explanation on the emergency procedures at the MRT station.

The visit ended with a presentation of a token of appreciation by MRT Corp to the delegates. 🎁



APPRECIATION: Mass Rapid Transit Corporation Sdn Bhd Strategic Communications and Stakeholder Relations Junior Executive Encik Maharezan Mahadzir presenting a token of appreciation to a representative from the Ministry of Housing and Local Government.



WELCOMING: Mass Rapid Transit Corporation Sdn Bhd Strategic Communications and Stakeholder Relations Junior Executive Encik Maharezan Mahadzir welcoming the delegates from the Ministry of Housing and Local Government.



BRIEFING: Briefing on the facilities available at MRT station to fulfil the needs of Persons With Disabilities being given by Mass Rapid Transit Corporation Sdn Bhd Planning and Design Senior Project Manager Encik Mohd Fadzil Abd Hadi.



CLOSER: Participants of the 'Kursus Pendedahan Reka Bentuk Sejagat Tahun 2019' getting the opportunity to have a closer look at the Persons With Disabilities toilet specifications during their visit to the MRT Kajang Station.



SAFETY: Mass Rapid Transit Corporation Sdn Bhd Planning and Design Senior Project Manager Encik Mohd Fadzil Abd Hadi giving a briefing on the safety procedures and features at the train platform such as tact tiles for the visually impaired.

PLANMALAYSIA VISITS MRT SBK AND SSP STATIONS

A DELEGATION of 25 personnel from PLANMalaysia made a technical visit to Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) headquarters and the MRT Sungai Buloh-Kajang (SBK) Line and the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line stations on 18 July 2019.

PLANMalaysia Deputy Director Dr Dzul Khaimi Hailani led the visit in conjunction with a study by PLANMalaysia on 'Integrated Land Use Master Plan Study for MRT SSP Line'. The outcome of the study is to serve as a guide to Local Authorities on the suitable land use in implementing possible Transit Oriented Development along MRT SSP Line alignment.

The visit began with a briefing on the MRT Lines as an 'Economic Corridor and Rail Network Connectivity' by MRT Corp Property General Manager Encik Mohd Nasri Mohamad Nor. The delegates then took the MRT train to view the MRT Kwasa Damansara and Sungai Buloh stations.

They continued the visit by going to the sites of MRT SSP Line stations; Kepong Baru and Hospital Kuala Lumpur. The visit to these stations was primarily to understand the site context and its surrounding as well as potential for pedestrian and bicycle lane connectivity. 🚶🚲



■ **MEMORY:** A group photograph of the delegates from PLANMalaysia, together with officials from Mass Rapid Transit Corporation Sdn Bhd at the MRT Hospital Kuala Lumpur Station site.



■ **MRT LINES:** Mass Rapid Transit Corporation Sdn Bhd Property General Manager Encik Mohd Nasri Mohamad Nor giving a briefing on the MRT Lines as an 'Economic Corridor and Rail Network Connectivity' to delegates from PLANMalaysia.



■ **SITE CONTEXT:** Delegates from PLANMalaysia observing the site context of the MRT Kepong Baru station.

RM252.7 MILLION AWARDED TO BUMIPUTERA CONTRACTORS



A TOTAL of RM 252.7 million have been awarded to Bumiputera contractors licensed by the Construction Industry Development Board (CIDB) Grade G1 to G6 by Mass Rapid Transit Corporation Sdn Bhd as at 31 December 2019.

These subcontracts, totaling at 175 packages, were part of the Klang Valley MRT Project Bumiputera Participation Programme that allocated a number of subcontracts crafted out from the main work packaged contractors' contract for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line.

The subcontracts for the Bumiputera Contractors in Grades G1-G4 were awarded by way of balloting, whereas those in Grades G5-G6 were awarded by the main work package contractors themselves.

Based on the grading system by CIDB, Grade G1 contractors are eligible for work packages up to the value of RM200,000, while those in Grade G2 are eligible for work packages

between RM200,001 and RM500,000. Grade G3 contractors are eligible for work packages between RM500,001 and RM1,000,000 while those in Grade G4 are eligible for work packages between RM1,000,001 and RM3,000,000.

Those in Grade G5 are eligible for work packages between RM3,000,001 and RM5,000,000 and those in Grade G6 can vie for work packages between RM5,000,001 and RM10,000,000.

Of the 175 subcontracts allocated for Bumiputera contractors to date, 56 packages worth RM 8.6 million were awarded to G1 contractors, 37 packages worth RM 13 million were awarded to G2 contractors, 28 subcontracts worth RM21.6 million were awarded to G3 contractors and 32 subcontracts were awarded to G4 contractors.

Meanwhile 11 subcontracts were awarded to G5 and G6 contractors each, worth RM 42.1 million and RM 105.2 million respectively. 🚶🚲

SECURITY AND CENTRALISED LABOUR QUARTERS SEMINAR 2019

WITH an aim to communicate current laws, policies on code of practices, programs and way forward on workers accommodation and also to educate participants on rules and regulation of hiring security guards in accordance to the Private Security Act 1971, the Standard and Compliance Division of MRT Corp had organised a Security and Centralised Labour Quarters (CLQs) Seminar on 4 September 2019, which was held at the KVMRT Training Centre in Sungai Buloh.

From the Department of Labour, the first speaker for the seminar Encik Che Rokman Che Awang gave a talk on the topic of 'Amendment on the Minimum Standards of the Housing and Employee Act 1990'. He touched on the topic of responsibilities of employers in providing a safe and clean boarding for employees, including the minimum requirement of boarding. He also reminded the participants to not discriminate the workers as they are in a foreign land trying to earn an honest living.

Coming from the Royal Malaysia Police, the second speaker ACP S. Shanmugamoorthy Chinniah gave a talk on the topic 'Violent Crimes'. He explained on how the police force carry out ground work to study the crime rate in an area, and the importance of not delaying nor negating in reporting of a crime. The statistics collected from the report would enable the police to properly deploy support to the affected areas, allowing crime prevention to be better administered. He had also commended the centralized model of the CLQs as this will protect the workers from being targeted by criminals.

After a short morning break, the seminar continued with the third speaker from PLANMalaysia, Encik Mohamed Zamri Mohd Zain with the topic 'Guideline in Boarding Planning for Foreign Workers'. He explained on the method of development of the CLQs and reminded the participants to provide quality and conducive boarding to the workers.

In his speech officiating the seminar, MRT Corp Standard and Compliance Director Tuan Haji Mohd Yusof Kasiron stressed that all personnel involved in the SSP Line must ensure strict adherence to security



■ Best Centralised Labour Quarters in Management 2019 awarded to IJM Corporation Berhad during the Security and Centralised Labour Quarters Seminar 2019.

obligations as per contract, in ensuring project security is at the highest level. He had also reminded to hire legal security guards as per rule of law.

In recognising the effort put forward by the CLQ management, the Best CLQ Management 2019 and Best CLQ Security Management 2019 were awarded to the two top CLQs. The former was judged based on the criteria of management, facilities, cleanliness and maintenance, whereas the latter was judged based on operation and maintenance, management of access to site, site intrusion control, recruitment, legal aspect, inspection and even personal discipline of securities. Best CLQ Management 2019 was awarded to IJM Corporation Berhad and the Best CLQ Security Management 2019 was awarded to Malaysian Resources Corporation Berhad.

A dialogue session led by MRT Corp Standard and Compliance Assistant Manager Encik Haliman Othman took place after the lunch break with the managers from the CLQs Tuan Haji Omar bin Mohamed of V207 Mudajaya

Berhad, Encik Muhd Yus Rezza Mahdum of V203 IJM Corporation Berhad and Mr V. Visvanathan of UG Cochrane. They shared on the challenges in managing the CLQ. The speakers stressed that to ensure proper management, the managers must always have new ideas to continuously update the checklist. The checklist should include several key factors such as cleanliness of toilets, kitchen areas and others.

The evening continued with a presentation by Dr Norian Ismail from the Selangor Health Department with the topic 'Personal Hygiene and the Environment'. She explained on types of illness common in Malaysia, difference between contagious and non-contagious diseases and how to mitigate them, and the importance of ensuring personal hygiene and clean environment.

The participants went home with a variety of information and knowledge which could then be applied in managing the security and the CLQ of the SSP Line, for the betterment of the project. 🚗



■ Dr Norian binti Ismail from the Selangor Health Department giving a presentation on the topic 'Personal Hygiene and the Environment' during the Security and Centralised Labour Quarters Seminar 2019.



■ Encik Mohamed Zamri bin Mohd Zain from PLANMalaysia giving a presentation on the topic 'Guideline in Boarding Planning for Foreign Workers' during the Security and Centralised Labour Quarters Seminar 2019.



■ ACP S. Shanmugamoorthy A/L Chinniah from Royal Malaysia Police giving a talk on the topic 'Violent Crimes' during the Security and Centralised Labour Quarters Seminar 2019.

MRT CORP KNOWLEDGE SHARING WITH PETRONAS



EIGHT delegates from Petroliaam Nasional Berhad (Petronas) paid a visit to Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) Corporate Headquarters for a knowledge sharing session on procurement and contract management on 26 June 2019.

Petronas Project Delivery and Technology, Capability Management Manager Puan Amy Azlina Yusof led the delegation which consisted of employees from Group Technology Capability Management and Group Procurement Division.

The session began with a welcoming remark by MRT Corp Contract Management Head Sr Azita Mohamed Tahir which was followed by an introduction of the delegates from Petronas.

MRT Corp Procurement Head Encik Hasnul Alfian Harun then joined Sr Azita in presenting information about procurement management,

the strategy and process, which included the flow and method.

They continued their sharing on best practices in contract management; change control procedures, 'Statement of No Objection' and 'TKC Optimisation Proposal' process. Contract disputes and lesson learnt from the Sungai Buloh-Kajang (SBK) Line for improvement in the Sungai Buloh-Serdang-Putrajaya (SSP) Line as well as the challenges in conversion to turnkey contract were also imparted. The last information shared was the 'Industrial Collaboration Programme'.

The presentation concluded with a Q&A session where the delegates also shared their opinion and lesson learnt from their own experiences.

Puan Amy then presented a token of appreciation to MRT Corp which was followed by a group photo, to end the knowledge sharing session. 📷

MRT CORP HOSTS UNITEN STUDENTS

THIRTY six students from the Institute of Engineering and Technology (IET) University Tenaga Nasional (UNITEN) visited the Bandar Malaysia MRT Information Centre, Bandar Malaysia North on 24 July 2019.

In completing their Capstone Design course, led by UNITEN College of Engineering, Electrical Power Lecturer Miss Lee Hui Jing, the course requires them to design an operational system for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line Project. The visit will provide the students the information needed as well as the opportunity to witness how the Project has progressed in terms of construction and systems.

The visit began with an overview of the MRT Project by MRT Corp SSP Line Electrical and Mechanical System Senior Project Manager II Ir Ridzuan Abdul Wahab. He then continued with his presentation on the railway technology and its electrification systems. Later, Ridzuan shared on the design management, technical overview and major subsystems of the MRT Train System. He then explained on the Automatic Fare Collection System, focusing on system and network architectures, fare media and equipment.



■ **SHOWCASE:** The students from Universiti Tenaga Nasional taking the opportunity to experience a walkthrough of the MRT Station using the Virtual Reality showcase.

A Virtual Reality showcase ensued for the students where they were able to experience a walkthrough of the MRT station.

The visit ended with a group photography session, where MRT Corp presented a token of appreciation to a UNITEN representative. 📷

MRT PROJECT STUDY VISIT BY HONG KONG GOVERNMENT OFFICIALS



ELEVEN officials from the Civil Engineering and Development Department (CEDD) and the Planning Department (PlanD) of the Government of the Hong Kong Special Administrative Region visited Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) on 10 September 2019 for a study on the MRT Project.

The visit was part of the feasibility study on 'Urban and Green Design Study for the Future Town Centre and the District Commercial Node in Hung Shui Kiu New Development Area', which will formulate a recommended urban design and set up green targets to guide future developments in the Hung Shui Kiu New Development Area (HSK NDA) in Hong Kong.

The MRT Project presented the visitors with the opportunity to have an understanding on adoption of urban design concepts, especially on the station planning. The connections of MRT stations to adjoining residential and commercial developments could help enhance the conceptual urban design and future development of HSK NDA.

Held at MRT Corp headquarters in Kuala Lumpur, a welcome remark was given by MRT Corp Planning and Design Director Mr Alan Teoh,

followed by an introduction session of both organisations. The visitors also provided updates on the upcoming developments in HSK NDA. The construction works are tentatively scheduled to commence in 2020 of which the whole project is expected to be completed by 2037/2038.

MRT Corp Geotechnical and Tunnel Assistant General Manager Mr Khoo Chee Min, then gave a presentation on the MRT Project which covers the project structure, overview, timeline and progress, amongst others.

The next topic was on Transit Oriented Planning (TOD), presented by MRT Corp Architectural Assistant General Manager Mr Khoh Kok Hong. He briefed on the underground station design planning principles and TOD approach. The slides included TOD for connected and integrated developments, as well as those with integrated entrances.

The visitors from CEDD and PlanD proceeded to the MRT Gallery before taking a group photograph to commemorate the day and end their visit. 📷



WELCOME REMARK: Mass Rapid Transit Corporation Sdn Bhd Planning and Design Director Mr Alan Teoh (middle) giving a welcome remark to begin the study visit by officials from the Government of the Hong Kong Special Administrative Region.



MRT Project: Mass Rapid Transit Corporation Sdn Bhd Geotechnical and Tunnel Assistant General Manager Mr Khoo Chee Min (left), presenting on the MRT Project to visitors from the Government of the Hong Kong Special Administrative Region.



SCALED MODEL: The visitors from the Government of the Hong Kong Special Administrative Region viewing the scaled model of the MRT Project at the MRT Gallery.

SEOUL METRO VISITS MRT CORP

SIXTEEN officers from Seoul Metro visited the MRT Corp Headquarters for a knowledge sharing session on the best practices by MRT Corp that has been benchmarked in the industry, on 10 July 2019.

The visit began with a welcoming remark by MRT Corp Strategic Human Resource Deputy General Manager Encik Abdul Halik Zainal, who then presented the first part of the session which focused on employee welfare and compensation. Halik shared the overall strategies and initiatives that MRT Corp has implemented since 2012 to increase the morale of employees, where he stressed that attracting, developing and retaining the assets (employees) were the main thrusts.

Dynamic rewards such as market driven and work life balance were used to attract employees while building capable and competent talent through individual development plan and leadership and management development framework was how employees were developed. On the other hand, continuous engagement, employee recognition, pay for performance and career progression were components of the retain strategy.



The second part of the session saw labour management system and accident recurrence prevention as the covered topics. MRT Corp Standard and Compliance Assistant General Manager Encik Azhar Sofah presented insights on Safety, Health and Environment (SHE) and Centralised Labour Quarters (CLQ). He began by sharing the requirements of SHE in MRT Corp, followed by strategies employed for pre-award, pre-construction and construction. Best practices such as Impact Protection Vehicle, Traffic Control Paddle and Emergency

Response Team were also shared for the benefit of the delegates.

Azhar continued the session with information on CLQ guiding principles and policies, its general facilities as well as events and activities held at CLQ.

The visit ended with the Seoul Metro delegation handing over a token from their organisation as a gesture of appreciation for their visit to MRT Corp. 🚇

TAIWAN DELEGATES VISIT THE KVMRT PROJECT



ELEVEN delegates from Taiwan consists of three organizations, Kaohsiung Mass Rapid Transit (KMRT), Kaohsiung Rapid Transit Corporation (KRTC) and CECI Engineering Consultant visited MRT Corp Headquarters for a knowledge sharing session on 8 August 2019.

The visit aimed to learn from our experience in construction of the KVMRT Project. The visit began with a welcoming remarks and presentation by Mass Rapid Transit Corporation (MRT Corp) Sdn Bhd Geotechnical and Tunnel Assistant General Manager Mr Khoo Chee Min and followed by an ice breaking session by each delegate from Taiwan and MRT Corp.

Mr Khoo Chee Min then continued with the overall MRT Project background and also brief on the MRT project overview to the delegates for them to understand the various aspects of the Project.

He then explained on the project challenges that were faced by MRT Corp and how MRT Corp had managed to overcome the challenges. Before the presentation ended, he shared the project progress update for MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line and also on the MRT travel guide with the delegates.

The delegates were interested with the project and asked various questions to gain clarification and further understanding of the project. They also shared their opinion and lesson learnt from their experience.

The delegates took a group photograph at the MRT gallery to commemorate the day to end the visit. 🚇



EXCHANGING IDEAS: The delegates from Mass Rapid Transit Bureau of Kaohsiung City Government and Kaohsiung Rapid Transit Corporation exchanging ideas with Mass Rapid Transit Corporation Sdn Bhd officials during their knowledge sharing session.



PRESENTATION: Mass Rapid Transit Corporation Sdn Geotechnical and Tunnel Assistant General Manager Assistant General Manager Mr Khoo Chee Min giving a presentation on the Klang Valley MRT Project to delegates from Taiwan.

TANZANIA DELEGATES VISIT BANDAR MALAYSIA NORTH MRT STATION



■ **VIEWING DECK:** The visitors from the Association of Citizen Contractors Tanzania looking at the construction site of Bandar Malaysia North MRT Station from the viewing deck platform.



■ **GROUP PHOTO:** A group photograph of Association of Citizen Contractors Tanzania delegates with Mass Rapid Transit Corporation Sdn Bhd officials in front of the Bandar Malaysia MRT Information Centre.

TWENTY six members of The Association of Citizen Contractors Tanzania (ACCT) visited the Bandar Malaysia North (BMN) MRT Station construction site on 12 November 2019 to gain exposure on underground tunneling construction as well as acquiring knowledge on safety strategies implemented in MRT underground construction sites.

Their trip to Malaysia was facilitated by the High Commission of the United Republic of Tanzania in Kuala Lumpur and this visit was organised for them by Master Builders Association Malaysia.

The visit began at Bandar Malaysia MRT Information Centre with a welcome remark by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) Underground Tunnel Senior Project Manager I Mr Peter Barnett. He continued with

a presentation on the Klang Valley MRT (KVMRT) Project, tunneling in urban areas, Tunnel Boring Machine launching and breakthrough as well as details on the underground stations such as the progress, views, layout and sections.

The next presentation was on the overview of Safety, Health & Environment (SHE), which was delivered by MRT Corp Centralised Labour Quarters (CLQ), Health, Environment, Safety and Security Assistant General Manager Encik Azhar Sofah. He presented on SHE requirements and the strategies during pre-award, pre-construction and construction stages. Azhar also shared the Occupational Safety and Health related committee, CLQ facilities, KVMRT Training Centre and SHE site implementation such as the Impact Protection Vehicle, scaffold management and water quality, sedimentation, noise and erosion

controls. He ended his presentation with SHE related mobile applications and software used for site management and compliance as well as training and competency for the KVMRT Project.

A safety briefing was given by MMC Gamuda KVMRT (T) Sdn Bhd Safety and Health Officer Mr Selvaraj Thangaraju before the participants proceeded to the BMN MRT Station construction site where they had the opportunity to visit the viewing deck platform.

A presentation of a token of appreciation from ACCT Chairman Mr Milton J Nyerere to Peter ended the visit, followed by a group photo to commemorate the event. 📸



■ **READY:** The Tunnel Boring Machine is ready to breakthrough at the Ampang Park MRT Station.



■ **IN PROGRESS:** The breakthrough of the Tunnel Boring Machine at the Ampang Park Station is in progress.

NINTH SSP LINE TBM BREAKTHROUGH

THE ninth Tunnel Boring Machine (TBM) breakthrough for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line took place on 8 November 2019 at the Ampang Park MRT Station.

TBM S-1063 mined from the Hospital Kuala Lumpur (HKL) Crossover to the Ampang Park MRT Station, a distance of 1.9km, after its launch on 9 February 2019.

This milestone marked the steady progress of the overall SSP Line construction which was at 63.5% as of 31 October 2019. The progress for tunneling works for the same period was at 61.1% while the overall progress for underground works, which included both tunneling and underground station works, was at 66.8%.

The eight completed tunnel drives were from Sentul West Station to Titiwangsa Station, Titiwangsa Station to HKL Station, HKL Station to Kampung Baru North Station, Kampung Baru North Station to

Ampang Park Station, Chan Sow Lin Station to Bandar Malaysia North Station and Bandar Malaysia North Station to Bandar Malaysia South Station. These completed tunnel sections amounted to 14,441m total of tunneling distance.

Three tunneling sections are in progress at the Sentul West Station to the North Portal, Conlay Station towards KLCC East and Ampang Park stations as well as Chan Sow Lin Station towards Tun Razak Exchange (TRX) Station.

In addition, there are two sections which have not begun; from Bandar Malaysia South Station to the South Portal and Conlay Station towards TRX Station.

The total bored tunnel length which is the total TBM travel distance including bore through and pull through stations, is 23,624m and the tunneling works is scheduled to complete in July 2020. 🚇

MRT CORP WINS GLOBAL GIS AWARD

MASS Rapid Transit Corporation Sdn Bhd (MRT Corp) was the recipient of the GIS (SAG) Award in the Special Achievement Category for its implementation of the first cloud-based Geographic Information System (GIS) in Asia by fully integrating Building Information Modelling (BIM) and Reality Modelling into the ArcGIS Portal.

The SAG Award by the United States GIS software, location intelligence, and mapping company is one of the most coveted awards in the GIS industry internationally. This award is given to Esri users around the world for their outstanding work with GIS technology. MRT Corp was selected out of more than 100,000 organisations worldwide for its innovative use of GIS and BIM technology in the Architecture, Engineering & Construction (AEC) industry.

The SAG Award winners were announced at the Esri User Conference 2019, attended by over 19,000 attendees on 8 July 2019 at the San Diego Convention Center, United States of America.

Thousands of SAG Award nominations are submitted by Esri users every year from around the world. The submissions are then personally reviewed and selected by Esri President and founder, Mr Jack Dangermond himself.

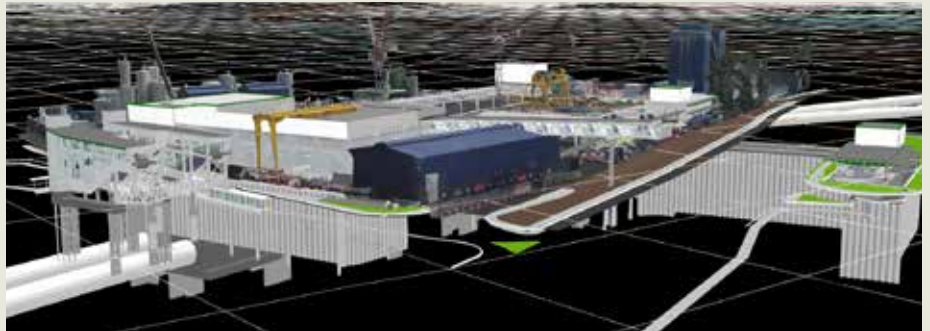
The Sungai Buloh-Serdang-Putrajaya (SSP) Line Geospatial Web Portal powered by ESRI ArcGIS technology serves engineering, topographic and environmental data of project sites for better informed decision making, improved project execution and reduced risk exposure.

The portal has enabled the project teams to retrieve and access spatial data in an easy-to-use cloud-based platform which has increased productivity, data-sharing and data retrieval between different engineering disciplines.

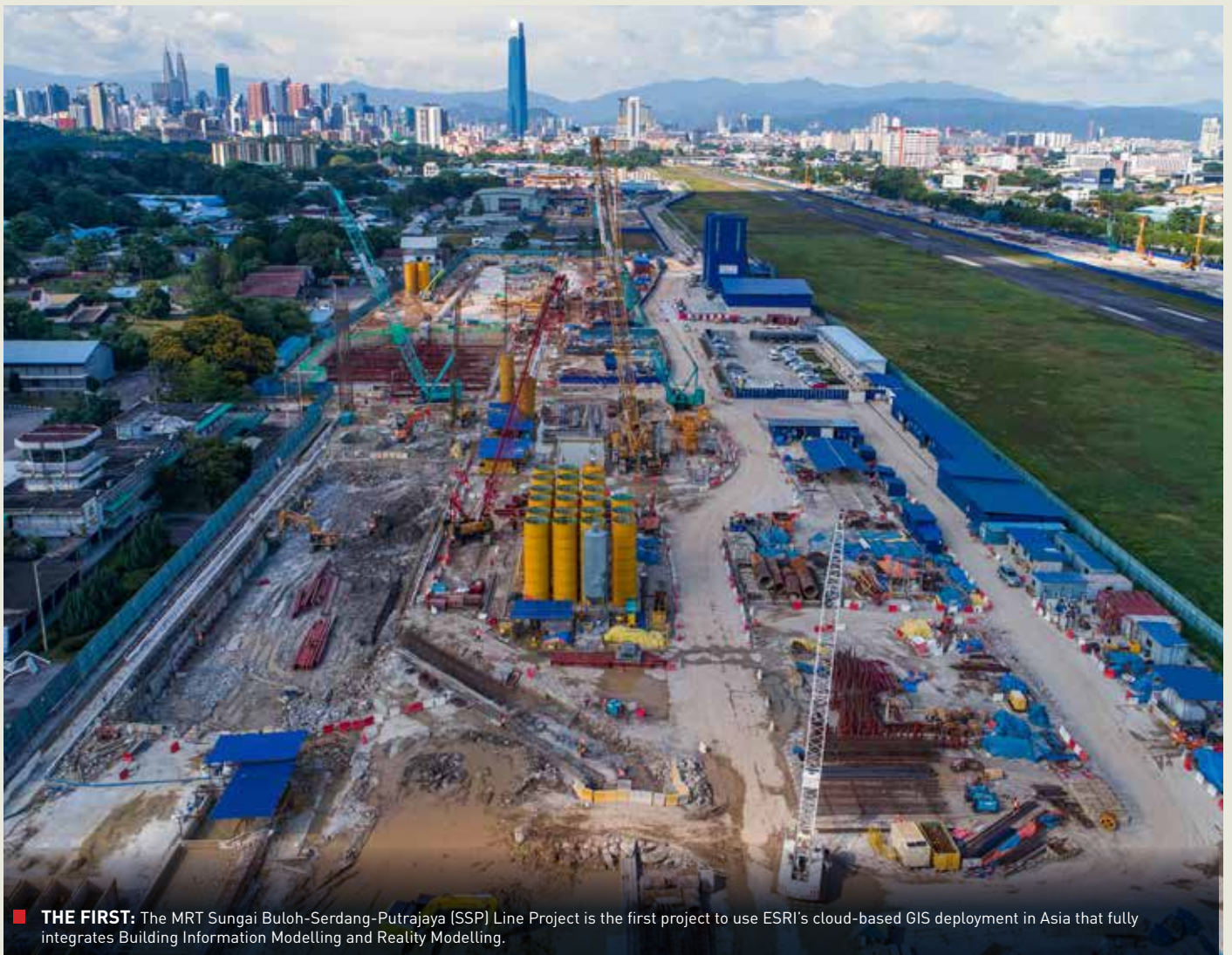
It has facilitated the collaboration and sharing of geospatial information in a centralised cloud platform. The project team can easily explore and navigate the mapping platform; layering it with data from other disciplines.

The project team members can view, analyse and query data on this platform; increasing overall productivity and ease of data sharing between disciplines, contractors and departments.

The MRT SSP Line Project has been recognised as the industry leader for advanced digital technology implementation such as BIM Level 2 and GIS in this region and as a testament to the use of technology to enhance productivity, efficiency and quality for project delivery. 🚗

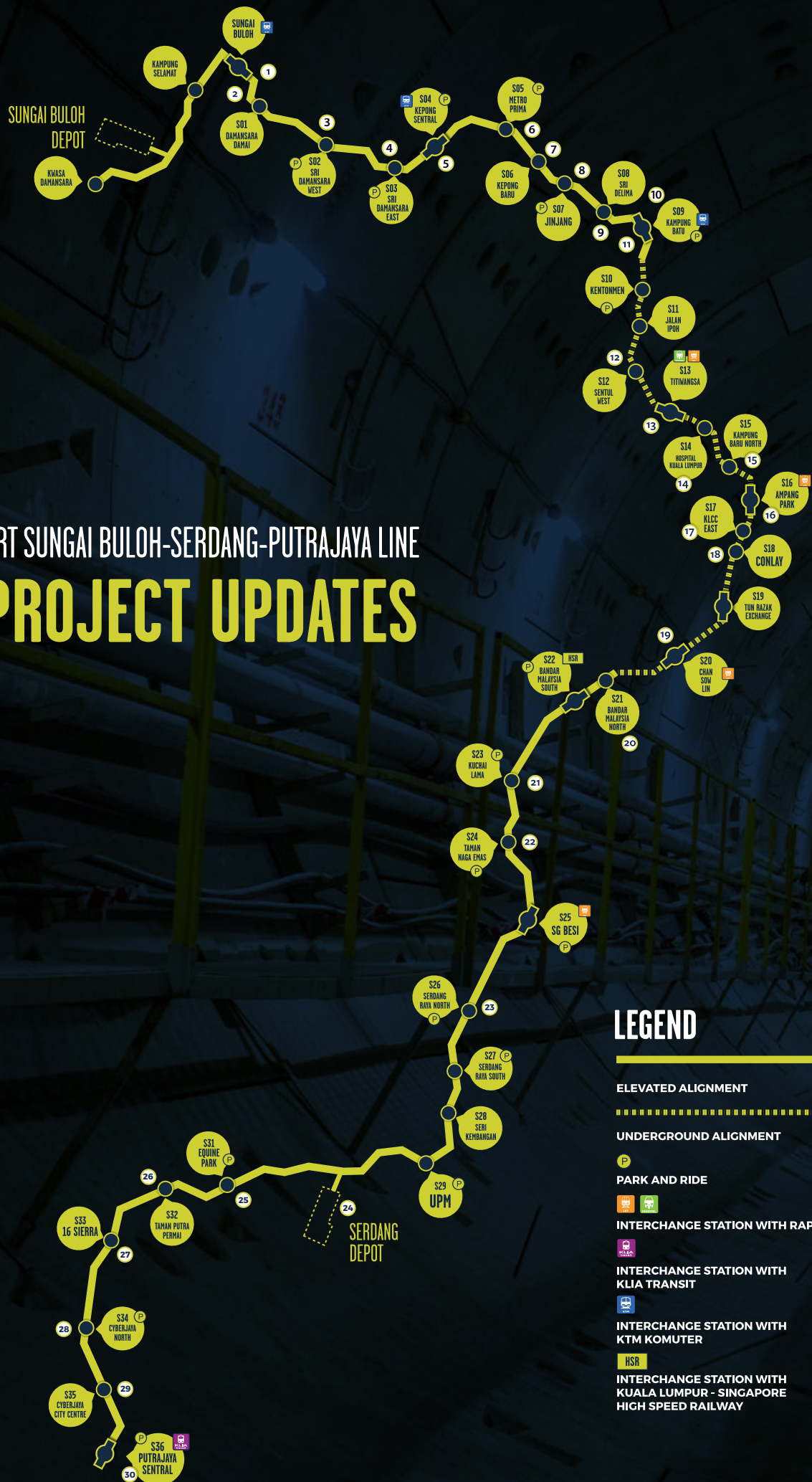


■ **PORTAL:** The Sungai Buloh-Serdang-Putrajaya (SSP) Line Geospatial Portal unifies the project's Building Information Modelling information and monthly updated Reality Models which were created using fusion of the aerial photos captured by Unmanned Aerial Vehicle.



■ **THE FIRST:** The MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line Project is the first project to use ESRI's cloud-based GIS deployment in Asia that fully integrates Building Information Modelling and Reality Modelling.

MRT SUNGAI BULOH-SERDANG-PUTRAJAYA LINE PROJECT UPDATES



1



Aerial view of the progress for the construction of long span crossing at the alignment near ramp to Sungai Buloh Toll.

2



Construction works in progress for Damansara Damai MRT Station entrance.

3



Aerial view of ongoing construction works of trackform slab at the Sri Damansara West MRT Station site.

4



Aerial view of station architectural and structural works at the Sri Damansara East MRT Station site.

5



View of installation of steel structure frames and micropiles for station entrance in progress at Kepong Sentral MRT Station site.

6



Aerial view of the installation works for steel structure lower frame as well as architectural works at concourse level of the Metro Prima MRT Station in progress.

7



Ongoing architectural finishes works such as installation of station façade at the Kepong Baru MRT Station site.

8



Aerial view of Jinjang MRT Station with completed permanent diversion of monsoon drain under station box.

9



Aerial view showing ongoing casting works for the Sri Delima MRT Station lift.

10



Aerial view showing completed parapets installation works at the alignment crossing Jalan Kuching.

11



Ongoing steel structure works at the Kampung Batu MRT Station site.

12



Overall view of the Sentul West MRT Station along Jalan Sultan Azlan Shah.

13



View of the roof level infill slab formwork installation at the Titiwangsa MRT Station site.

14



Night view of Hospital Kuala Lumpur MRT Station site showing reinforced concrete wall construction.

15



Aerial view of the excavation of diaphragm wall starting at Entrance A of the Kampung Baru North MRT Station.

16



Aerial view of the Ampang Park MRT Station site showing the excavation works to upper under platform level.

17



Aerial view of the KLCC East MRT Station site showing the upper under platform level excavation and permanent utilities reinstatement in progress.

18



Aerial view of the Conlay MRT Station site showing the recently launched northbound tunnel (Conlay MRT Station to Ampang Park MRT Station drive).

19



View of the tunnel boring machine pull through and the external rebar works at the Chan Sow Lin MRT Station site.

20



View of the walkway and utilities line in the tunnel drive between Bandar Malaysia North tunnel and Chan Sow Lin tunnel.

21



Ongoing T-beam launching works at the Kuchai Lama MRT Station site.

22



Aerial view of the Taman Naga Emas MRT Station site showing the station platform level works in progress.

23



Aerial view of the completed launching of segmental box girder and preparation of trestle platform for launching at the Serdang Raya North MRT Station site.

24



View of the Serdang Depot stabling yard with overhead bridge construction.

25



Aerial view of completed spans at the Equine Park MRT Station site.

26



Aerial view of ongoing concourse level slab works at the Taman Putra Permai MRT Station site.

27



Aerial view of the 16 Sierra MRT Station site showing the final layer and Entrance 2 roof covering installations in progress.

28



Aerial view of the Cyberjaya North MRT Station site showing architect works in progress.

29



Aerial view of the Cyberjaya City Centre MRT Station showing the completed station platform.

30



Aerial view of the Putrajaya Sentral MRT Station showing station platform works in progress.

KVMRT PROJECT BAGS BEST PROJECT AWARD



■ **BEST PROJECT:** Mass Rapid Transit Corporation Sdn Bhd Chief Executive Officer Encik Abdul Yazid Kassim (right) receiving the 'Best Project Award – Infrastructure (Major Category)' from Deputy Minister of Works YB Tuan Haji Mohd Anuar Mohd Tahir (middle) and Malaysia Construction Industry Excellence Award (MCIEA) 2018 Prominent Player Award winner, Dato' Sri Kandan Kanagaintiram (left), during the MCIEA 2019 event held at W Hotel, Kuala Lumpur.

THE Klang Valley Mass Rapid Transit (KVMRT) Project won the Best Project Award during the Malaysia Construction Industry Excellence Award (MCIEA) 2019 for its Sungai Buloh Depot.

The MRT Maintenance Depot in Sungai Buloh (Package DPT1), the biggest depot in Southeast Asia, topped the 'Best Project Award - Infrastructure (Major Category)', which was the category for projects valued at more than RM100 million.

The award recognised the construction of the Sungai Buloh Depot as having demonstrated overall excellence in project implementation, which included safety and health practices, benefit to the society

and nation, consideration on maintenance and asset and facility management and workmanship and quality of construction works.

The MCIEA is organised by Construction Industry Development Board Malaysia (CIDB) with the objectives to recognise individual or/and organisations who have contributed and demonstrated excellence in enhancing image, performance and improvement of the construction industry, to provide a platform for healthy competition amongst industry players in the quest for excellence by showcasing best practices in project implementation and strengthening the construction industry players, both domestically and internationally. 🇲🇾



MRT CORP WINS EMPLOYER EXCELLENCE SILVER AWARD

MASS Rapid Transit Corporation Sdn Bhd (MRT Corp) emerged as one of the five winners of the Silver Award at the inaugural Malaysian Employers Federation (MEF) Employer Excellence Award 2019 on 8 October 2019.

The MEF Employer Excellence Award recognises the recipients for their compliance to the Malaysia Employee Act and the additional benefits that they have provided to their employees.

The award was presented by Minister of Human Resources YB Tuan M Kulasegaran during MEF 60th Anniversary, held at Holiday Villa Hotel and Conference Centre Subang. MRT Corp Chief Executive Officer Encik Abdul

Yazid Kassim received the award on behalf of the company at the event.

Members of MEF, including MRT Corp were invited to participate in the MEF Employer Excellence Award by submitting to be assessed by industry experts and professionals through a competitive comprehensive assessment.

On top of the award, the result from the assessment would also provide the participating organisations with a specifically tailored programme that would enable respective companies to develop action-oriented solutions that is unique and fit-for-purpose. 🇲🇾

HAPPENINGS



Arrival of the first Completely-Built-Unit (CBU) trains on 11 June 2019, which was produced by Hyundai-Rotem in Changwon, South Korea - for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line at the MRT Depot Sungai Buloh.



The delegation from Malaysia Rail Link Sdn Bhd (MRL) experiencing a Virtual Reality showcase walkthrough of the MRT Titiwangsa Station Control Room during a knowledge sharing session on Geographical Information System (GIS) implementation for MRT Sungai Buloh-Serdang Putrajaya (SSP) Line Project on 26 June 2019.



The third tunnel breakthrough for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line at the Hospital Kuala Lumpur Crossover on 5 August 2019, which leaves another 13 out of 16 tunnel drives to be completed for the 13.5km underground section at the time being.



The delegation from Jabatan Kerja Raya (JKR) Structural Communities of Practice (CoP) visited Bandar Malaysia North MRT Station construction site on 2 October 2019.



The delegation from Special Project Division of UDA Holdings Berhad (UDA) visited Bandar Malaysia MRT Information Centre on 17 October 2019.



The Second Tier Industry Collaboration Program (ICP) Agreement Signing Ceremony took place at the Connexion Conference and Event Centre, Bangsar on 22 October 2019 between six Work Package Contractors (WPCs) of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line Project and six Higher Learning Institutions, in establishing the first ICP Program involving Higher Learning Institutions in the nation's rail industry.

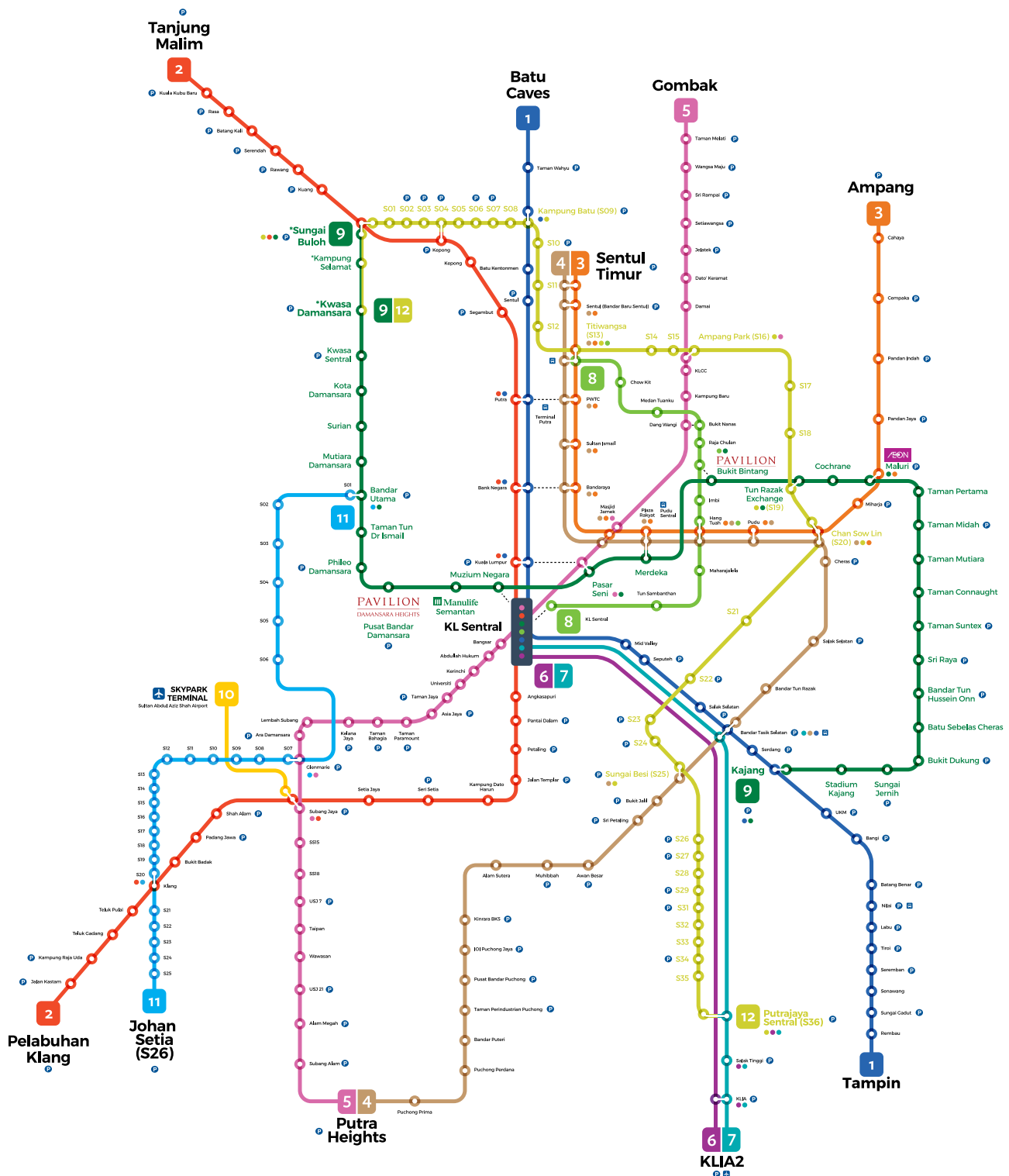


The underground linkway connecting AEON Maluri MRT Station with AEON Maluri Mall was officially opened on 21 November 2019, where the Minister of Domestic Trade and Consumer Affairs (KPDNHEP) YB Datuk Seri Saifuddin Nasution Ismail took a ride on the MRT from Taman Suntex MRT Station to AEON Maluri MRT Station to experience the convenience of the underground linkway.



Tourism Malaysia, in collaboration with Prasarana Malaysia Berhad and Mass Rapid Transit Corporation Sdn Bhd launched the KL Heritage Food Trails and MyCity Pass as an initiative to boost tourist arrivals for Visit Malaysia 2020, held at the Pasar Seni LRT/MRT Interchange area on 20 December 2019.

KLANG VALLEY RAIL TRANSIT MAP



Legend

1 KTM Seremban Line	5 LRT Kelana Jaya Line	9 MRT Sungai Buloh-Kajang Line	Connecting Station	Airport Terminal
2 KTM Port Klang Line	6 ERL KLIA Ekspres Line	10 KTM Skypark Line	Interchange Station	Park and Ride
3 LRT Ampang Line	7 ERL KLIA Transit Line	11 LRT Bandar Utama-Klang Line	Rail Terminal	
4 LRT Sri Petaling Line	8 KL Monorail Line	12 MRT Sungai Buloh-Serdang-Putrajaya Line	Intercity Bus Station	

- * When operations commence in 2021, the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line will begin from Kwasa Damansara Station. This brings the total number of stations for the SSP Line to 38 including the Kwasa Damansara Station, Kampung Selamat Station and Sungai Buloh Station which are built under the MRT Sungai Buloh-Kajang (SBK) Line. Therefore, the SBK Line will also begin from Kwasa Damansara Station. This will reduce the number of stations for the SBK Line from 31 to 29 stations.